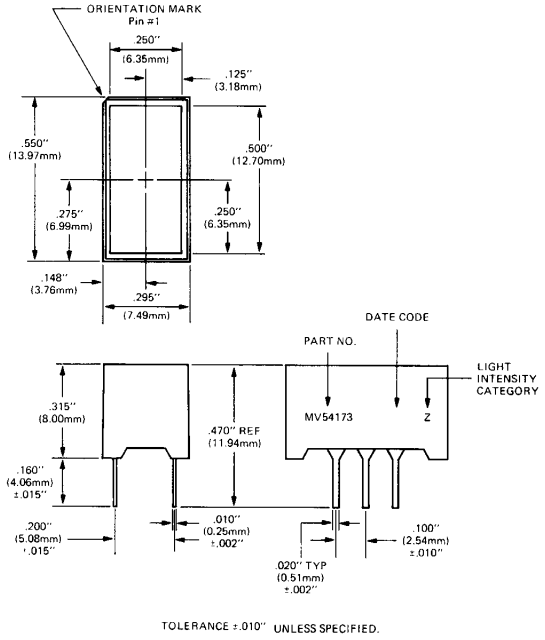
FAIRCHILD
SEMICONDUCTOR™

PANEL INDICATORS

YELLOW MV53173
HIGH EFFICIENCY GREEN MV54173
HIGH EFFICIENCY RED MV57173

PACKAGE DIMENSIONS



TOLERANCE ±.010" UNLESS SPECIFIED.

DESCRIPTION

The MV5X173 series is a large rectangular lamp which contains two LED chips with separate anodes and cathodes for each light. The illuminated area is 0.500-inches×0.250-inches (12.7 mm×6.35 mm).

FEATURES

- .500-inch×.250-inch lighted area available in three colors
- Solid state reliability
- Fast switching—excellent for multiplexing
- Low power consumption
- Directly compatible with IC's
- Wide viewing angle
- .2 inch DIP lead spacing
- Mounting hardware available
- Categorized for Luminous Intensity (See Note 1)

APPLICATIONS

- Panel indicators
- Backlight legends
- Light arrays

ABSOLUTE MAXIMUM RATINGS

	MV53173	MV54173	MV57173
Power dissipation at 25°C	190 mW	200 mW	200 mW
Derate linearly from 50°C	−4.3 mW/°C	−4.5 mW/°C	−4.3 mW/°C
Storage temperature	−40°C to +100°C	−40°C to +100°C	−40°C to +100°C
Operating temperature	−40°C to +85°C	−40°C to +85°C	−40°C to +85°C
Continuous forward current per light (25°C)	20 mA	30 mA	35 mA
Peak forward current per LED chip (1 μsec pulse width, 300 pps)	60 mA	90 mA	1.0 A
Lead soldering time at 260°C (See Notes 3 and 5)	5 sec.	5 sec.	5 sec.

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TYPICAL ELECTRO-OPTICAL CHARACTERISTICS (25°C Free Air Temperature)

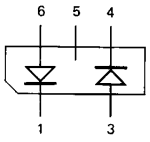
PARAMETER	TEST CONDITIONS	MV53173	MV54173	MV57173	UNITS
Forward voltage (V_F)					
Typ.	I_F=20 mA	2.0	2.2	2.0	V
Max.	I_F=20 mA	2.5	3.0	2.5	V
Luminous Intensity					
Min. (See Note 1)	I_F=20 mA	4.5	4.5	4.5	mcd
Peak wavelength					
Typ.	I_F=20 mA	585	562	635	nm
Spectral line half width	I_F=20 mA	45	30	45	nm
Capacitance					
Typ.	V=0, f=1 MHz	35	20	35	pF
Reverse voltage (V_R)					
Min.	I_R=100μA	5	5	5	V
Typ.	I_R=100μA	25	50	25	V
Viewing angle (total)		120	120	120	degrees

TYPICAL THERMAL CHARACTERISTICS

	MV53173	MV54173	MV57173
Thermal resistance juntion to free air Φ_{JA}	160°C/W	160°C/W	160°C/W
Wavelength temperature coefficient (case temp.)	1.0 A/°C	1.0 A/°C	1.0 Å/°C
Forward voltage temperature coefficient	−1.5 mV/°C	−1.4 mV/°C	−2.0 mV/°C

PIN CONNECTIONS

PIN NO.	ELECTRICAL CONNECTIONS
1	Cathode 1
2	No Pin
3	Anode 2
4	Cathode 2
5	NC
6	Anode 1



FILTER RECOMMENDATIONS

For optimum ON and OFF contrast, one of the following filters or equivalents may be used over the lamp:

MV53173
Panelgraphic Yellow 25 or Amber 23
Homalite 190—1720 or 100—1726

MV54173
Panelgraphic Green 48
Homalite 100—1440 Green

MV57173
Panelgraphic Red 60
Homalite 100—1605

In situations of high ambient light, a neutral density filter can be used to achieve greater contrast:

Panelgraphic Grey 10

Panelgraphic Grey 10
Homalite 100—1266 Grey

NOTES

1. *The average Luminous Intensity is obtained by summing the Luminous Intensity of each segment and dividing by the total number of segments. The standard of measurement is the Photo Research Corp. "Spectra" Microcandela Meter (Model IV-D) corrected for wavelength. Intensity will not vary more than ±33.3% between all segments within a unit.*
2. *Leads immersed to 1/16 inch (1.6 mm) from the body of the device. Maximum unit surface temperature is 140°C.*
3. *All units are categorized for Luminous Intensity. The Intensity category is marked on each part as a suffix letter to the part number.*
4. *For flux removal, Freon TF, Freon TE, Isoproponal or water may be used to their boiling points.*

TYPICAL CURVES (Per LED Chip Unless Indicated) (25°C Free Air Temperature)

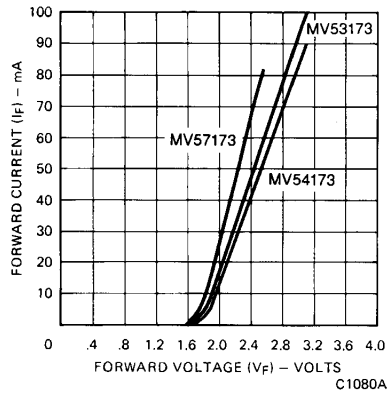


Fig. 1. Forward Current vs. Forward Voltage

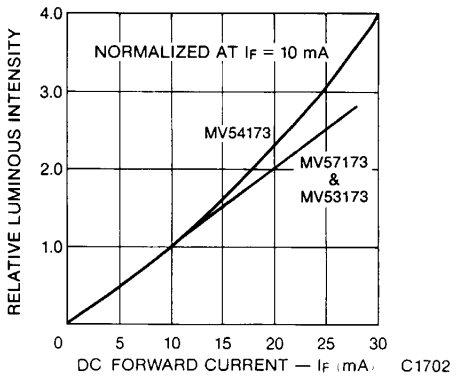


Fig. 2. Relative Luminous Intensity vs. DC Forward Current (Both LED Chips ON)

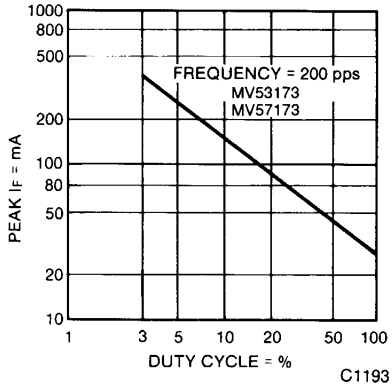


Fig. 3. Max Peak Current vs. Duty Cycle

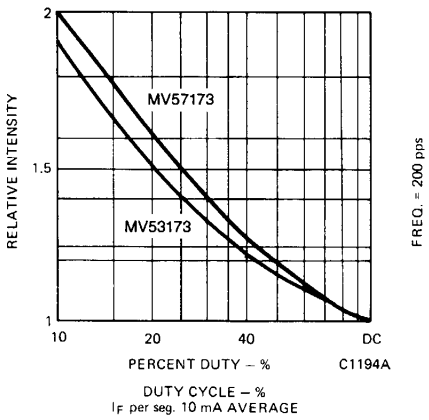


Fig. 4. Luminous Intensity vs. Duty Cycle

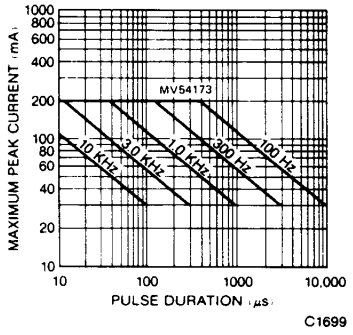


Fig. 5. Maximum Peak Current vs. Pulse Duration

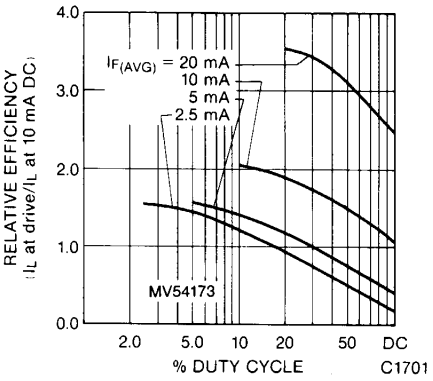


Fig. 6. Relative Efficiency vs. Duty Cycle

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.